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FOOD.

IN INFANCY, CHILDHOOD AND ADOLESCENCE.

By F. Godfrey, M.B.

(*Continued from page* 104).

Since this lecture was delivered, Dr. Playfair and others have drawn attention to the importance of sterilizing cow's milk for use in the nursery. It has been demonstrated that the fermentation which causes souring of milk is due to the action of a specific organism, and also that the peculiar form of "green diarrhœa," from which infants so commonly suffer, is produced by a member of the large and potent family of "bacilli." Both these organisms gain access to the milk from without—from the air—and both these, as well as other organisms and germs, with which milk may become infected, may be destroyed by being exposed to a temperature at or above the boiling point of water for 15 or 20 minutes. And it has been shown that milk so treated, and then hermetically sealed, will keep perfectly sweet and good for an almost indefinite time. It has further been proved that the curd of milk so sterilized is almost, if not quite, as light and flocculent as that of human milk, and that the youngest infant can digest it. It is not generally known that milk boils at a point above the boiling point of water, and that it does not develop the peculiar, and to some children, objectionable taste of boiled milk till its own boiling point is reached. So that in every way it would be preferable to use sterilized milk in the nursery. It can be obtained ready for use from some of the best known milk and dairy companies at a little above the price of fresh milk, or it can be very easily prepared at home in any one of the domestic sterilizers which have recently been introduced, and which may be had at the cost of a few shillings. Or in the homes of the poor, to whom every shilling is of importance, the milk may be efficiently sterilized by standing it in a wide-mouthed *scoured* bottle in a saucepan of water kept at boiling point for 20 minutes, the mouth of the bottle being immediately sealed from the air, by adjusting over it an ingenious diaphragm of

gutta percha, which may be bought from any chemist for a few pence.

The carbohydrates of our food consist, as we have seen, of starch and sugar, and when starch is eaten by any of us it is changed into sugar by the action of the saliva and other digestive juices. Now children up to three months old have no power of thus digesting starch, and to give them starch is to put into their stomachs a substance which must inevitably disagree. This is a fact which is but little known amongst the laity, and not known at all, I believe, amongst the poor; and the want of this simple piece of knowledge is without doubt the cause of much of the infant mortality. It is an every-day occurrence to see babies in cottages, and even in the homes of well-to-do people, being fed upon thin gruel, arrowroot, sopped bread, or other starchy food, and to hear an anxious mother ask why, with all the food she gives it, her baby is pining away and suffering from sickness and diarrhœa. The truth is that the poor little creature is not being *fed*, it is really being starved, in spite of the large amount of nourishing-looking food which it consumes. There is no starch in human milk, the carbohydrate there being supplied as sugar, and we must supply it in that form in infancy.

The various infants' foods, and their name is legion, are "malted" or so prepared that the starch, which forms their chief source, is changed artificially into Maltose—a form of sugar,—and so made capable of digestion. It is not my place to discuss their respective merits here; many of them are excellent, but in some the conversion of starch into sugar has not been completely carried out. All, I believe, lack fat, and they are likewise deficient in introgenous principles and mineral matters. They are valuable *additions* to milk food, and are most suitable to children over three months old. Mixed with water alone they are quite unsatisfactory, and should never be so given.*

*I must add here that within the last few months a well-known firm of London chemists, have introduced a food which they call "First Food for Infants" which they claim to contain all the elements of human milk in their proper proportions, in a dried form, and which merely requires to be made up with boiled water. From my own experience of it, I believe it to be what it is claimed to be; and I consider that it marks a great advance in the manufacture of artificial infants' foods. But like all other artificial foods it does not agree with every infant, some small stomachs rejecting it.

I must allude, too, to a food commonly resorted to, namely, condensed milk; it has both its advantages and its disadvantages.

Its advantages are that it is always ready at hand, that it keeps sound for a long while, and that it is easily prepared, and therefore that it is valuable temporarily when travelling, or when, as in summer or the turnip season, cow's milk is apt to sour and disagree.

Its disadvantages are that it contains a very large amount of added sugar, which often causes it to ferment in the stomach and produce acidity; that it is, when diluted in the proportions advised, deficient in nitrogenous and mineral elements, and fat.

Babies fed upon condensed milk, as a rule grow large and plump looking, because of the extra amount of sugar contained in it; but they are nearly always pale and flabby, and are usually late in teething. If used for young infants it should be largely diluted; cream and animal matter, in the form of raw white of egg or meat juice, should be added. The objection to the large amount of sugar, which is really added as a preservative, has been met by the preparation of the unsweetened variety, but this again, from the lack of added sugar, is apt to decompose.

Human milk would be pretty accurately represented for say a child of a month old by *boiled* cow's milk one tablespoonful, cream two teaspoonfuls, sugar of milk half-a-teaspoonful, boiled water or barley water two tablespoonfuls. And for one of six months old by boiled milk five tablespoonfuls, cream one tablespoonful, sugar of milk one teaspoonful, or malted food two teaspoonfuls and boiled water two tablespoonfuls.

After the age of six months, when the first teeth appear, a little farinaceous food may be given, some Mellin's Food or other malted food or barley jelly; and this may be gradually increased up to the ninth or tenth month, which is the usual time for weaning. At this age we may safely introduce once a day the yolk of an egg mixed with stale bread crumbs, or some beef-tea, veal or other broth with crumbs, or a little well-mashed potato and gravy.

At a year old the child may have, in addition to the preceding, bread and milk, bread and butter, rusks and milk,

oatmeal porridge, farinaceous pudding, and some pounded underdone mutton with potato and gravy. After the age of two-and-a-half years, some finely cut roast meat, or poultry, or some boiled white fish may be given with the mid-day meal, together with plenty of mashed potato. Fat can be agreeably supplied in butter, bacon dip, and suet pudding. It is also contained in cocoatina, which is a pleasant change from milk. During the rest of childhood the diet should be plain and simple, and varied as much as possible. The meals should be regular, and care should be taken that they are not hurried over and bolted. Vegetables should form part of the daily dinner, for from them chiefly the mineral elements of the food are derived, and sound ripe and stewed fruit are admissible and advantageous. The child should be allowed to satisfy its appetite at each meal; there is no fear of his eating too much, provided he eats slowly and masticates his food properly. It is not only cruel, but a serious error, to deny a second helping to the hungry child at meal-time. There are, I admit, a certain number of greedy children whose eyes are larger than their stomachs, but they are but few and can be properly managed; the vast majority of children may safely be trusted to eat till they are satisfied. A little milk should not be denied to the child who complains of hunger between meals. A small cup of milk last thing at night, and on first waking in the morning, lessens the long night's fast and does not interfere with a good breakfast.

All seasoned and fancy dishes should be strictly avoided, and scraps of savoury from the parents' dinner-table can do no good, and may do much harm. If a child is never given savoury or seasoned foods he will never want or ask for them, and he will not run the risk of becoming dainty. A properly trained child should, and will, eat the plain wholesome food put before him without demur. Children are not dainty by nature, any more than are other young animals, and if they become so the parents are to blame in nine cases out of ten. Please do not misunderstand me. I fully admit that there are children to whom one or other form of food or dish is repulsive—sometimes it is milk pudding, or it may be meat, or egg, or porridge. To force the child to eat the dish he naturally dislikes, is to practice a cruelty which cannot be too

strongly condemned; and the only result will be to convert what is a temporary aversion, which time and judicious management will overcome, into a permanent and rooted dislike.

Daintiness is a different thing altogether, and unfortunately it is a fault for which one need not search very far.

Plain chocolate and plain sponge or other cake are the safest and best form of sweet. Currants, in cake or puddings, are dangerous, and frequently set up sharp intestinal irritation. Pure water, filtered if possible, is the proper drink with dinner. Wine and beer are unnecessary and harmful.

Regarding the period of childhood proper as extending to the age of about 12 years, we now come to the period of *adolescence*, which extends to the ages of 17 and 18, and which means practically the period of school-life.

I need hardly remind you that this is a most important and eventful period in the life of the individual. It is the period in which character is chiefly formed, in which growth and development are most rapid, in which organs and bodily functions are being perfected, and during which much physical and intellectual activity and strain is being undergone. How necessary then is it that the organism should be supplied with proper food during this period. Want of knowledge of, and lack of attention to the food, and to the proper times for food, during this period, have ruined many a constitution, and handicapped many a man and woman in the battle of life.

We must all bear in mind that physical development is determined and perfected during this period chiefly, and that any check to physical development now, means a life-long hindrance, which no amount of high intellectual culture nor academic honours can compensate for. Mental development does not stop with the physical; it goes on practically for life, and need not be unduly hurried, and *must* not be pushed at the expense of the bodily development. And, together with the general activity of the body, and with the rapid changes going on in it, there is a corresponding activity of the digestive organs. The demand for food in the growing boy or girl, is frequent and great, often apparently excessive; but it is a demand which must, within reason, be supplied,

for it is a physiological demand by the organism for the nutriment necessary for its rapid growth and evolution.

The hunger of the healthy school-boy or girl is a healthy hunger, which should be appeased with proper food. Just as in childhood the essential elements we have discussed, are required, so here they are essential also. Nitrogenous foods for the building up of the rapidly developing muscles; hydrocarbons and carbohydrates—fats and starches—for generating heat, and furnishing the fuel which is required to meet the frequent demand caused by the giving off of muscular energy; mineral matters for the growth and perfecting of the bones and teeth; water to help in the distribution of all these to the organs and tissues, and for the carrying off of the products of tissue waste.

The *nitrogenous* elements are supplied chiefly in meat, fish, poultry, eggs, and animal soups and broths, and are required at two meals in the day, breakfast and dinner. Meat should be sound, tender and properly cooked, not tough, underdone and repulsive as is sometimes the case; and it should be remembered that re-cooking, in the form of hashes, stews, &c., diminishes its nutritive value, and makes it less digestible. Salted meats are inadvisable, and should be avoided. They are, as a whole, less digestible than fresh meats, and they are a very common cause of eczema and other skin irritations. Need I say that a joint of meat nicely served, and neatly carved, is more attractive and more enjoyed, and therefore better digested than one cut up into large uneven junks. Perhaps, too, it is going a little aside to add a plea for cleanly dressed servants at the school dinner-table; a coarsely helped meat, served by an untidy maid, will repel a child of delicate feelings, and will tend to make the less refined one deteriorate still more. *Fats* are as essential to the growing school child as to the infant, and should be given in plenty. Butter, of course, is the commonest and most agreeable form of fat, and it should be fresh and good. Suet pudding consists largely of fat, and served with treacle or golden syrup it is usually enjoyed; bacon, hot or cold, is a valuable fatty food. The fat of meat is often refused, and if so, it is, I think, a mistake to enforce it, for if insisted upon the repugnance to it is only increased and possibly rendered permanent, whereas by judicious handling it may ultimately

be taken well. It will often be taken readily if carefully mixed in with mashed potato.

Starches should be given in abundance in bread, potatoes, oatmeal porridge, plain cake, and farinaceous puddings of all kinds. Bread should be well made, and of what is known as whole-meal flour. Sugar—the other form of carbohydrate—is needful, and can be freely supplied as jam, treacle and honey. Sweets, if wholesome, are not as injurious as is generally supposed, and the craving for them is probably in great part a demand by organism for the sugar contained in them. Do not think, please, that I am advocating the surfeit of badly made unwholesome sweets, which so often in my boyhood ended in a bad headache, a visit from the School Doctor, and a dose of calomel or Gregory's powder. And, while on the subject of sweets, let me allude to the practice of sending hampers from home. I am not so far past my own school-life as to have forgotten the pleasure derived from the discussion and disposing of a well-stocked hamper, nor am I wanting in sympathy with my young school friends who are fortunate enough to be able to enjoy that luxury now; but, at the same time, honesty compels me to affirm that if a parent has confidence in the school at which her (for the fond mother is usually the author of the hamper) son is, it is wiser not to interfere with the good wholesome food of the school, or to risk upsetting her boy and his select circle of friends. Remember that the good things of the hamper are eaten (at least they were in my day) late at night in the dormitory, when a boy should be asleep, with his muscles recovering from the effects of the football or cricket match, his brain from the mental strain of the class-room (if he has really put it to any strain), and his stomach from the healthy labour which it has been called upon to perform. To stuff that stomach with jam rolls, tarts, almonds and raisins, fruit and ginger beer, at such a time, or at any other time for the matter of that, no matter how ostrich-like the boy's stomach may be, is, to say the least, unfair to the stomach.

The *mineral matters* of the food are of great importance, and should be supplied in the form of vegetables, fruit and salt. Vegetables should form a large part of the school child's mid-day meal, either cooked, or raw in salads of lettuce, tomato or cress. They are often refused because

badly cooked and served in an uninviting form. By their use the occurrence of eczema, so common at this age, may be largely avoided; and constipation with its resulting anaemia, that *bête-noir* of the school-girl, may be often successfully guarded against. Sound ripe fruit, raw and cooked, is useful, palatable, and harmless. Salt is a table requisite which should be supplied and eaten. *Water* is needful, and should form the regular drink with dinner; it should always be filtered, and in the summer-time it is safer to have it boiled as well. Beer, wine, and alcoholic drinks generally, are quite unnecessary, and should never be allowed unless specially ordered. The custom, now happily almost extinct, of giving school-boys beer with their dinner, was a most pernicious one, and one that could only do harm; and it is even more injudicious to allow beer with supper.

Now all these essential elements of food are contained in milk, which should form a daily part of the diet of the school child. A glass of milk and a slice of bread and butter, or a few biscuits, should always be available to the hungry boy or girl during the fast from breakfast to dinner, in order to compensate for the mental strain of the morning's work; such light refreshment is often needful, and it is infinitely preferable to beef-tea, that old and arch impostor. It savours of heresy to denounce beef-tea to a lay audience, but it cannot be too widely known that, as ordinarily prepared, beef-tea is not a food; it is at best a stimulant, rich in strong, though comparatively worthless, extractives; and it is high time that it should be dethroned from its reign in the diet of the invalid and the sick room.

Plenty of time should be allowed for meals. Hurry means deficient mastication and imperfect digestion. We not infrequently see cases of ill-health caused by a long walk home from school, a hurried dinner and a race back to the class-room immediately afterwards. Lessons should not encroach too closely on the dinner hour; an hour and a half at least should be allowed between morning and afternoon work; and a day-boy whose home is some considerable distance away, is better taking his mid-day meal at the school. Morning study on an empty stomach is much to be deprecated. After the long night's fast it is too great a strain to undertake any mental work before food is taken.

A cup of hot coffee with milk and a biscuit, or a basin of oatmeal porridge with milk, should be allowed before the morning preparation, the work of which will then be done far more satisfactorily. A light tea at five or six o'clock, with a good nutritious supper of porridge, farinaceous pudding, or some good soup with bread, at eight, is preferable to a heavier tea at six and a long fast till breakfast on the following morning.

This then, ladies and gentlemen, concludes my subject. I am fully conscious of the inadequate way in which I have dealt with it; but if I have been able to urge its importance upon you; if I have been able to teach any of you some important fact which you did not know, or which you had not duly considered; if the result of this lecture should be a gain in health, strength and happiness to any one infant or child, then your time has not been wholly wasted, and mine is well repaid.

WHAT TO DO WITH OUR GIRLS.

By Miss Soulsby.

"Are you going to send your mother to hear Miss Soulsby's paper?" said a friend of mine to a girl. "No! indeed! Mamma would never forgive anyone who offered to tell her how to manage *us!*"

This objection to advice seems such a fundamental feeling in all mothers, that I doubt if even those belonging to the Parents' Union do not sympathize with it in their hearts. *I* heartily sympathize with that mother! There is such a fundamental difference between the mother's knowledge from the *inside* and the stranger's observation from *outside*, that I do not wonder the mother feels as if unmarried advice were the most profitless form of coals to Newcastle.

There is one point of the mother's knowledge peculiar to herself,—her knowledge of probable hereditary tendencies,—which at once puts on a lower level of practical wisdom any suggestions from an outsider, however wise in the abstract. But the mother's consciousness of her own superior power of dealing with the child in question, sometimes leads her to undervalue the stranger's counter-balancing advantage of being a "*looker-on.*" Every mother, without exception, simply *by force of being the mother*, can tell us outsiders far more about her own child than we can possibly tell her; but every mother has probably known what it is to receive suggestions from impartial relations and friends,—criticisms somewhat hotly repelled at the time, but which seemed to her to hit the mark when considered afterwards in calmer moments. If you multiply by hundreds that clear-sighted aunt's or cousin's experience of children, you arrive at the schoolmistress's point of view!

Then also each child is not only the unit, intimately known only to its own mother: it is also one of a generation, liable